REMARKS

The rejections and comments of the Examiner set forth in the Office Action dated April 18, 2003 have been carefully reviewed by the Applicant.

Claims 1, 10, 17, 2, 3, 4, 5, 11, 12, 13, 18, and 19 are currently rejected under 35 U.S.C. 102(b) as being anticipated by Van Steenwyk (US 4461088). The Applicant respectfully traverses the rejection on the grounds that Van Steenwyk fails to teach or suggest every element of the invention as claimed in Claims 1, 10, 17, 2, 3, 4, 5, 11, 12, 13, 18, and 19.

The rejection holds that Van Steenwyk teaches "mounting a multi-axis accelerometer device on a turntable in a first orientation (col. 1, lines 45-61)." This is incorrect. The device mounted on the carousel (turntable) of Van Steenwyk is a single accelerometer, as described at col. 1, lines 62-65. A single accelerometer in and of itself does not constitute a "multi-axis accelerometer." The single accelerometer in combination with other components (e.g., carousel and gyroscope) is used to provide a device that Steenwyk describes as equivalent to a multi-axis

accelerometer. Thus, Van Steenwyk does not teach mounting a multi-axis accelerometer on a turntable or carousel.

Further, it must be noted that the multi-axis capability using of Van Steenwyk depends upon using a gyroscope 20 that is rotated with the accelerometer 21, as shown in Figures 1 and 4.

The rejection also holds that Van Steenwyk teaches a "turntable having a tilt angle with respect to a vertical axis defined by a local gravity vector (col. 1, lines 62-68)." This is also incorrect. The cant angle described at col. 1, lines 62-68 is measured with respect to the axis of rotation, which is not an axis defined by a local gravity vector. The axis of rotation is defined by the angle of the borehole (travel axis) in which the entire instrument is situated, as shown in Figures 1 and 6 and described at col. 6, lines 1-9.

The sole teaching of Van Steenwyk with respect to a gravity vector is with respect to the conventional prior art multi-axis accelerometer at col. 1, lines 15-27. The device taught by Van Steenwyk seeks to replace the multi-axis accelerometer, and does

not rely on the gravity vector used in conjunction with the described prior art.

It is important to note that the present invention, as described and claimed, is not directed to a multi-axis accelerometer per se, but to a system and method of calibrating a multi-axis accelerometer (e.g., determining scale factors or alignment angles). Van Steenwyk is silent with respect to calibration of a multi-axis accelerometer. The only calibration discussed by Van Steenwyk is the calibration of recorder pens.

Claims 6-9 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Steenwyk (US 4461088) in view of Slater et al. (US 6545440). The Applicant respectfully traverses the rejection on the grounds that Van Steenwyk fails to teach or suggest every element of the invention as discussed above, and Slater fails to remedy the previously described defect of Van Steenwyk.

The rejection holds that it would have been obvious to use Fourier transforms and analog to digital converter taught by Slater in order to have a high accuracy precision measurement

system. This is incorrect. Slater explicitly states at col. 1, lines 29-34 that "A computer collects the amplitude and phase data sampled by the microwave probe, and calculates the far-field equivalent using a Fourier transform technique." This is the sole teaching by Slater with respect to Fourier transforms.

One with normal skill in the art would understand that the application of Fourier Transforms as taught by Slater would have no intrinsic value with respect to accuracy or precision. The finite precision of numbers that may be stored and manipulated in a digital computer will prevent a computer calculated solution from being as accurate as an analytic solution. Although numerical methods may be used that allow a computer to solve a wide range of complex problems quickly, there is an inherent inaccuracy in using a computer to solve an analytic equation such as a Fourier Transform. For example, in calculating a Fourier transform using a computer, the value for π must be truncated.

The present invention as described and claimed is not anticipated or suggested by either Van Steenwyk or Slater, or their combination.

In summary, Applicant asserts that Claims 1-19 are in condition for allowance and earnestly solicits such action by the Examiner.

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Respectfully submitted,

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